

Moral Emotions: An Analysis Guided by Heider's Naive Action Analysis

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Abstract

The present research proposes a theoretical framework describing the emergence of moral emotions. In analyzing the cognitive antecedents of moral emotions, we refer to Heider's (1958) concepts of ought, goal attainment and effort. In Study 1, participants ($N = 60$) rated whether they experience moral observer emotions (i.e., admiration, anger, contempt, disgust, indignation, pride, respect, schadenfreude, and sympathy) with respect to situations characterized by different combinations of ought, goal attainment, and effort. In Study 2 ($N = 61$), the same procedure was used to analyze moral actor emotions (i.e., embarrassment, guilt, pride, regret, and shame). Studies 3 ($N = 75$) and 4 ($N = 51$) replicated these findings by using techniques characterized by higher ecological validity. ANOVAS and cluster analyses were conducted to analyze similarities and differences with regard to different sub-groups of moral emotions. Taken together, results reveal that ought, goal attainment, and effort explain impressive amounts of variance in the elicitation of moral emotions. Based on these results, an empirical classification of moral emotions is proposed which is based on the evaluative function and target of the respective emotions

Keywords

Moral Emotions; Morality; Folk Psychology; Attribution

Introduction

We know very well what it is like to feel sympathy or anger, admiration or indignation, pride or guilt. Thus, we navigate through the landscape of these so-called 'moral emotions' easily, and apparently do not need to engage in complex considerations to 'decide' how we feel (see also Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Haidt, 2001; Hauser, 2006). However, this does not necessarily mean that we do not make 'decisions' that guide our emotional experiences. Nevertheless, to our knowledge, a comprehensive conceptual framework describing these decisions and thus explaining the genesis of moral emotions has not been developed. Recent works have demonstrated that moral emotions have a strong impact on moral

decisions (e.g., Greene, Nystrom, Engell, Darley, & Cohen, 2004; Haidt, 2007), ascribing these emotions a strong causal status in the chain from cognition to action. Many researchers have elaborated on specific moral emotions (e.g., Ben-Ze'ev, 1992; Higuchi & Fukada, 2002; Keltner & Haidt, 2003; McCullough, Kilpatrick, Emmons, & Larson, 2001; Rudolph, Roesch, Greitemeyer, & Weiner, 2004; Smith & Kim, 2007; Tracy & Robins, 2007) or specific samples of moral emotions (e.g., Feather & McKee, 2009; Feather & Sherman, 2002; Feather, 2008; Fischer & Roseman, 2007; Gutierrez & Giner-Sorolla, 2007; Hareli & Parkinson, 2008; Hareli & Weiner, 2002; Rozin, Lowery, Imada, & Haidt, 1999; Sheikh & Janoff-Bulman, 2010; Stuewig, Tangney, Heigel, Harty, & McCloskey, 2010; Tangney & Dearing, 2002; van Dijk, Ouwerkerk, Wesseling, & van Koningsbruggen, 2011), contributing to a deeper understanding of these specific emotions. A comprehensive experimental analysis and synthesis of these findings, however, is still lacking.

In the present paper, we will first provide a conceptual analysis of the so-called moral emotions, followed by an experimental analysis of their cognitive antecedents

What are Moral Emotions?

Thus far, a comprehensive and generally accepted definition of moral emotions does not exist, although numerous definitions of moral emotions have been proposed. As a common denominator, these definitions include "a consideration concerning good and bad, right and wrong, and ought and should" (B Weiner, 2006, p. 87). Moreover, Haidt (2003) defines moral emotions as those "that are linked to the interests or welfare either of society as a whole or at least of persons other than the judge or agent" (p. 276). In addition, Fiske (2002) points out that moral emotions are the "immediate motivational proxies for expected long-term benefits of important relationships" (p. 170). These definitions complement one another by highlighting different important elements of moral emotions – that is, cognitive,

adaptive, and motivational aspects.

Given these definitions, it nevertheless appears difficult to compile a definite list of moral emotions. As a practical approach for identifying moral emotions, we conducted a 'PsycInfo' and 'Philosopher's Index Online' search on all words of the 'affective lexicon' (Clore, Ortony, & Foss, 1987), in combination with the words "moral emotion*". Additionally, we checked the lists of moral emotions offered by Haidt (2003) and Weiner (2006). According to this literature search, 23 emotions have been labeled as moral emotions: Admiration, anger, awe, contempt, disgust, elevation, embarrassment, empathy, envy, gratitude, guilt, indignation, jealousy, pity, pride, regret, remorse, respect, schadenfreude (joy in the misfortune of others), shame, scorn, and sympathy.

On one hand, this list is probably quite exhaustive, as we have included all potential candidates mentioned in the psychological and philosophical literature. On the other hand, there is no consensus as to which emotions can be referred to as "moral", and there is no obligatory or selective criterion to distinguish moral from non-moral emotions. The above-mentioned list of moral emotions should thus be regarded as preliminary, and currently contains prototypes as well as close synonyms. As Haidt (2003) has noted, some of these moral emotions are likely more prototypical than others. We suggest that the more prototypical moral emotions are exclusively experienced concerning actions of individuals and occur in a wide range of different situations (e.g., pride, shame, admiration or schadenfreude; to mention a few). In contrast, non-prototypical moral emotions (e.g., awe, elevation) are restricted to specific contexts (e.g., religion, natural and moral beauty, or exceptional human actions or abilities; see Haidt, 2003). In addition, some of these emotions represent close relatives rather than highly distinct emotions (McCullough et al., 2001).

A Classification of Moral Emotions

We propose two criteria, target and evaluative function, for classifying moral emotions: First, moral emotions can be distinguished with respect to their target. Some of these emotions are regarded as self-conscious (Haidt, 2003; J. P. Tangney, Stuewig, & Mashek, 2007; J.P. Tangney & Dearing, 2002; J.P. Tangney & Fischer, 1995) or self-directed (B. Weiner, 2006), as for example guilt, pride, regret, and shame. In the following, we will label these emotions as actor emotions, as they are targeted at one's own actions. In contrast, several moral emotions are regarded as being

other-directed (e.g., admiration, anger, gratitude, and sympathy; (Weiner, 2006, see also Haidt, 2003). These emotions have in common that they are targeted at other persons and their actions; therefore, we will label these emotions as observer emotions.

Second, as several authors have pointed out (e.g., Fiske, 2002; Greene, 2003; Haidt, 2003, 2007; Tangney et al., 2007; Weiner, 2006), moral emotions function to regulate social behaviors. We therefore propose that moral emotions evaluate a person's action as either positive or negative. This criterion applies to both moral actor emotions (evaluating one's own actions as either good or bad; see also Haidt, 2003; Lewis, 2008), as well as to moral observer emotions (evaluating others' actions as either good or bad) (see also Haidt, 2003). To put it in other words, moral emotions evaluate one's own as well as other person's actions as morally praiseworthy or blameworthy).

We suggest that the evaluative function of a moral emotion represents the evaluative content of the respective emotion as a means for communication (towards others) and information (towards oneself). For example, with respect to actor emotions, pride represents a positive self-evaluation, whereas embarrassment, guilt, regret, remorse, and shame represent negative self-evaluations. Analogously, observer emotions represent evaluations of the observed actions of other persons. For example, admiration, awe, gratitude, elevation, empathy, pity, pride, respect and sympathy evaluate the actions of the observed person as positive, whereas anger, contempt, disgust, indignation, jealousy, scorn and schadenfreude are negative evaluations of other's actions¹.

To conclude, the proposed criteria for the classification of moral emotions, target and evaluative function, serve as conceptual tools to differentiate the functional aspects of moral emotions: Positive actor emotions (i.e., pride) signal the experiencing person has done something good or praiseworthy and motivate the actor to continue with this behavior. In contrast, negative actor emotions (i.e., embarrassment, guilt,

¹ Please note that some of the emotions described as moral emotions, for example anger and disgust, may also occur in non-moral settings: For example, you may feel non-moral anger because your train arrived lately; or you may feel "core-disgust" watching somebody eating a piece of rotten meat. Rozin et al., 1999 refer to core disgust as "the guardian of the mouth against potential contaminants" (p. 575). (For a more detailed discussion of moral anger and moral disgust see also Hutcherson & Gross, 2011; Russell & Giner-Sorolla, 2011).

regret, shame) signal that the experiencing person has done something wrong or bad, that the person can be blamed and should change the behavior. The same regulative function is applied to observer emotions, except that the evaluative signal in this case is directed at the observed person.

Antecedents of Moral Emotions

Which kinds of cognitive concepts might give rise to this multifold landscape of moral emotions? We will next describe a theoretical framework based on Heider's (1958) naïve action analysis that provides important sufficient conditions for eliciting moral emotions². Therefore, we take a closer look at his concepts of ought, goal attainment, and effort.

1) Ought

As already stated, it is widely agreed upon that moral emotions require a consideration of good and bad or right and wrong. In addition, these judgments involve a general viewpoint beyond immediate personal interests (Haidt, 2003). Similarly, Heider (1958) has stated that ought is an impersonal concept and refers to relatively stable standards of what "ought" to be done or experienced (Turiel, 1983, 2002). These standards are independent of the individual's wishes: "This is not to say that personal wishes do not influence the perception of ought forces; it is rather that they 'should not'; in principle the ought is established by objective requirements [...] and beyond personal concerns." (Heider, 1958). The characterization of ought as an impersonal, normative concept also implies that it has interpersonal validity: "Not only should ought disregard personal desires, not only does ought appear in principle unchanged in spite of incidental situational factors, but it is also universal and should look alike to everybody" (Heider, 1958).

To summarize, the concept of ought refers to morally good versus bad goals or social standards, and is defined as a cognitive representation of an impersonal requirement, invariant across many situations, and transcending the individual's point of view.

2) Goal Attainment

² Interestingly, Heider's considerations closely resemble the ideas raised already David Hume (1739) in his early and ground-breaking work "A Treatise of Human Nature: Being an attempt to introduce the experimental method of reasoning into moral subjects".

Morality is not only a matter of what people should do, but also a matter of what they actually do. Furthermore, it is not only important which goals a person wishes to achieve, but also whether s/he actually does achieve these goals. As follows from Heider's naïve action analysis, goal attainment is dependent upon "a relatively stable relationship between the person and the environment" (Heider, 1958). According to this viewpoint, goal attainment requires that a person's abilities and efforts exceed both task difficulty and random situational factors. In the moral domain, goal attainment informs us whether a person actually reaches a given standard, that is, whether a generally positive or negative goal is either attained or not attained (see also Roseman, Wiest, & Swartz, 1994, for a differentiation between actions and goals).

In sum, ought provides the moral standard concerning what should be done, and goal attainment defines whether the desirable or undesirable goal is actually attained or not attained.

3) Effort

Given a moral standard (ought) and its attainment or non-attainment, motivational forces located within the acting person may still vary. Within Heider's naïve action analysis, goal attainment is dependent upon a person's ability and effort, task-difficulty, and luck. As Heider (1958) states, the concept of effort is a motivational factor contributing to the effective personal force. While ability, task-difficulty, and luck are not subject to volitional change and are thus uncontrollable, effort has been conceptualized as a controllable cause (e.g., Weiner, 1985). Within the moral domain, freedom of choice and personal controllability are necessary prerequisites for moral evaluations. That is, a person has the choice to expend either high or low effort to attain her/his goals (e.g., as a controllable cause for success or failure). In contrast, a person's ability is not a controllable cause (B Weiner, 2006).

Thus, the concept of effort is closely connected to the volitional forces of the person, expended to attain a certain goal. Due to the controllability of effort, judgments concerning this concept (the investment of high effort versus lack of effort) exert a decisive influence on our moral emotions.

Predictions

We argue that different combinations of ought, goal attainment, and effort elicit positive or negative moral

evaluations that constitute the cognitive basis for the experience of moral emotions. As outlined above, moral emotions communicate positive and negative evaluations of a person's own actions (actor emotions), or the actions of observed others (observer emotions). Our central assumption is that these moral evaluations are determined to a large extent by ought (O), goal attainment (GA), and effort (E), and that different combinations of ought, goal attainment and effort provide sufficient conditions for eliciting different moral emotions. The following predictions can be derived:

1) *Positive Moral Emotions*

A certain action should be regarded as 'good' if it conforms to moral standards (O+). A positive outcome (GA+) is likely to further increase the positive evaluation. With respect to effort, it is widely agreed upon that investing effort to attain a positive standard (E+) is positively evaluated (e.g., Matteucci, 2007; Reyna & Weiner, 2001; Weiner & Kukla, 1970). Thus, concerning one's own actions, i.e., O+, GA+, and E+ should elicit pride (see also Hareli & Weiner, 2002; Lewis, 2008; Tracy, Robins, & Lagattuta, 2005), whereas for other persons' actions, the same combination should elicit admiration, pride, and respect (see also Chipperfield, Perry, Weiner, & Newall, 2009; Hareli & Weiner, 2002). In contrast, when a goal is not attained (despite the fact that effort was invested, i.e., O+, GA-, and E+), sympathy should be the prototypical emotion (see also Rudolph et al., 2004).

2) *Negative Moral Emotions*

An action is evaluated as 'bad' if it does not follow moral standards (O-). Such a negative evaluation will be strengthened when a person tries hard (E+) to attain a negative goal, and/or when the negative goal is actually attained (GA+). In addition, an action will be also regarded as 'bad' if it does follow moral standards in the first place (O+), but when no effort is invested to attain the morally positive goal (E-). Moreover, lack of effort becomes most obvious when the goal is not attained (GA-) (B Weiner & Kukla, 1970; B Weiner, 2006). Emotional reactions related to one's own actions include embarrassment, guilt, regret and shame (see also Sheikh & Janoff-Bulman, 2010; Tangney & Dearing, 2002). With respect to other persons' actions, observers typically experience anger, contempt, disgust, and indignation (see also Fischer & Roseman, 2007; Rozin et al., 1999). When

other persons either pursue positive goals without investing effort or try hard to attain a negatively evaluated goal (O+, E- or O-, E+), *schadenfreude* is elicited when the respective goal is not attained (GA-; see also Van Dijk et al., 2011).

We will now present four studies analyzing the influence of ought, goal attainment, and effort on moral emotions. In Study 1 and 2, participants receive descriptions of events containing information about ought, goal attainment and effort; subsequently, moral emotions are assessed as dependent variables. As actor and observer emotions require slightly different methodologies, Study 1 investigates moral observer emotions, while moral actor emotions are analyzed in Study 2. In Study 3 and 4, we will employ a different method by analyzing autobiographical recollections of situations that our participants actually experienced.

STUDY 1

Method

1) *Participants*

Sixty psychology students (47 female, 13 male) of the University of Chemnitz (Germany) received course credits for participating in this study. Their age ranged from 19 to 46 ($M = 23.32$) years. Sessions were run in groups of 20, using a paper-pencil questionnaire, and lasted approximately 30 minutes.

2) *Experimental Design*

As independent variables, Heider's (1958) concepts of ought, goal attainment, and effort were manipulated. First, the normative aspect of the situation (ought) was varied; that is, we informed our participants about another person (referred to as "Max") who wants to attain a highly positive versus a highly negative goal. Second, we varied the concept of goal attainment by indicating that the person either did or did not reach this goal. Finally, we varied the concept of effort, as this person either did or did not invest much effort to attain the desired goal. As for some of the emotions (e.g., guilt or pride) closeness of relationship may be an additional factor contributing to their elicitation (see e.g., Baumeister, Stillwell, & Heatherton, 1994; Chipperfield et al., 2009), half of the participants were told that the target person was a close relative or best friend, while the other half were informed that Max was a stranger to

them. This resulted in a $2 \times 2 \times 2 \times 2$ mixed design, with three within-subjects factors (ought, goal attainment, effort) and one between-subjects factor (closeness of relationship). The resulting eight scenarios were presented in two random sequences to avoid order effects. All materials are available upon request.

As dependent variables, we presented a set of moral observer emotions. These emotions were admiration, anger, contempt, disgust, indignation, pride (here: being proud of someone else), respect, schadenfreude and sympathy³. The participants' task was to rate how likely it was that they would feel these emotions. A 7-point rating scale labeled with 0 (not at all) and 6 (extremely) was provided. The dependent variables were presented in one of two random sequences.

3) Procedure

Within each session, participants were randomly assigned to the respective conditions and received an instruction sheet, explaining the overall procedure and introducing the target person (Max). Participants received an explanation of a highly positive versus a highly negative goal. A highly positive goal was defined as an excellent or very praiseworthy pro-social action, such as helping someone, whereas a highly negative goal was defined as a blameworthy or anti-social action, such as aggression. Finally, participants were asked to rate the degree to which they experience certain emotions in different individual scenarios presented on the following pages.

Results

Analyses reveal that there is no influence of age, gender and presentation order on any of the dependent variables. Therefore, we will not consider these factors in the following analyses. According to our experimental design, we analyzed the respective conditions by repeated measurement ANOVAs with ought, goal attainment and effort as within-subjects

factors and closeness of relationship as a between-subjects factor. With only one minor exception, no effects were obtained for closeness of relationship. (Among 11 possible main effects and 33 possible first order interactions of closeness of relationship, just one was significant, explaining only little variance in the data (pride: $F(1,57) = 3.59, p < 0.05, \eta^2 < .01$). Therefore, we excluded "closeness of relationship" from the experimental design of Study 3. In addition, hierarchical cluster analyses are used to illustrate differences and similarities between moral emotions.

1) Analyses of Variance

ANOVA results and effect sizes are provided in Table 1. As a measurement of effect size, η^2 statistics are reported, indicating the amount of variance explained by each independent variable and their respective interactions. Computations of these statistics follow the guidelines provided by Cohen (1973; see also Levine & R, 2002). We follow the conventions proposed by Cohen (1977) referring to effects with $\eta^2 \geq .01$ as small, $\eta^2 \geq .059$ as medium, and $\eta^2 \geq .138$ as large. The respective means for each dependent variable are illustrated in Figure 1. (Tables with means and standard deviations are available upon request).

When taken together, the three independent variables on average (that is, across all moral observer emotions) explain 57 % of variance, ranging from 48 % (anger) to 68 % (admiration). As can be seen from Table 1, the respective independent variables (ought, goal attainment, and effort) as well as their interactions do not contribute equally to variance explanation: Different main effects and interactions are obtained for the respective observer emotions, with some emotions (e.g., admiration, pride and respect) showing quite similar patterns, while other emotions (e.g., schadenfreude and sympathy) are characterized by unique patterns across the respective experimental conditions:

Admiration, pride, and respect are experienced when a positive goal is attained, particularly when a lot of effort has been invested (see Figure 1). Hence, admiration, pride and respect are determined by main effects of ought (admiration: $F = 312, \eta^2 = 0.33$, pride: $F = 175, \eta^2 = 0.29$, respect: $F = 250, \eta^2 = 0.35$), goal attainment (admiration: $F = 204, \eta^2 = 0.12$, pride: $F = 128, \eta^2 = 0.06$, respect: $F = 126, \eta^2 = 0.06$) and effort (admiration: $F = 120, \eta^2 = 0.08$, pride: $F = 107, \eta^2 = 0.09$, respect: $F = 125, \eta^2 = 0.10$). These main effects are qualified by interaction effects of

³ We did not include close synonyms (remorse as actor emotion, and empathy, pity, and scorn as observer emotions) as well as emotions which typically occur in highly specific contexts (awe, elevation, gratitude, jealousy). Moreover, we did not include envy because we do not consider this emotion as a moral emotion: As Smith & Kim (2007) noted, envy is characterized by subjective feelings of inferiority produced by social comparison. This implies standards for comparison are not universal (moral), but personal. In contrast to moral emotions, envy does not judge actions as moral or non-moral, but is rather highly dispositional and therefore strongly dependent on personality.

TABLE 1. ANALYSES OF VARIANCE FOR OBSERVER EMOTIONS (STUDY 1): F-VALUES AND H^2 (MAIN EFFECTS AND INTERACTIONS) FOR OUGHT, GOAL ATTAINMENT, AND EFFORT.

Source																	
	Ought		Goal Attainment		Effort		Ought x Goal Attainment		Ought x Effort		Goal Attainment x Effort		Ought x Goal Attainment x Effort				
Emotion	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	η²Treat	η²Between	η²Error
Admiration	312.24***	0.33	203.79***	0.12	119.96***	0.08	149.72***	0.08	84.79***	0.06	2.53	0.00	< 1	0.00	0.68	0.07	0.25
Anger	185.20***	0.39	1.93	0.00	31.82***	0.02	50.16***	0.03	54.81***	0.04	< 1	0.00	2.07	0.00	0.48	0.21	0.31
Contempt	208.68***	0.52	14.31***	0.00	2.58	0.00	32.19***	0.01	48.08***	0.01	2.68	0.00	< 1	0.00	0.56	0.20	0.24
Disgust	149.78***	0.47	41.23***	0.01	9.16**	0.00	45.99***	0.01	11.90***	0.00	2.23	0.00	< 1	0.00	0.49	0.24	0.27
Indignation	271.07***	0.46	8.62**	0.00	30.50***	0.01	72.48***	0.04	64.01***	0.03	< 1	0.00	< 1	0.00	0.55	0.19	0.26
Pride	175.26***	0.29	128.25***	0.06	107.35***	0.09	122.46***	0.05	88.96***	0.08	10.01**	0.00	5.64*	0.00	0.57	0.15	0.28
Respect	249.92***	0.35	126.38***	0.06	124.68***	0.10	54.56***	0.03	152.84***	0.10	< 1	0.00	< 1	0.00	0.64	0.08	0.28
Schadenfreude	204.57***	0.15	170.15***	0.29	11.16***	0.01	126.79***	0.10	17.86***	0.01	7.63***	0.00	20.07**	0.01	0.57	0.13	0.30
Sympathy	57.70***	0.06	287.27***	0.18	128.30***	0.05	250.06***	0.16	92.16***	0.04	76.56***	0.04	99.73**	0.05	0.58	0.17	0.25
<i>M</i> (η²)		0.34		0.08		0.04		0.06		0.04		0.00		0.01	0.57	0.16	0.27

a. η^2 = explained variance for each individual factor in the experimental design; η^2_{Treat} = explained variance by treatment factor; η^2_{Between} = percentage inter-subject variance; η^2_{Error} = percentage error variance; * p < 0.05; ** p < 0.01; *** p < 0.001, all df = (1.59).

ought x goal attainment (admiration: F = 150, η^2 = 0.08, pride: F = 122, η^2 = 0.05, respect: F = 55, η^2 = 0.03): These emotions are also experienced to a moderate degree when another person has invested a lot of effort to pursue a positive goal, but nevertheless does not attain this goal, as can be seen from interactions effects of ought x effort (admiration: F = 85, η^2 = 0.06, pride: F = 89, η^2 = 0.08, respect: F = 153, η^2 = 0.10).

Furthermore, observers are most likely to feel *sympathy* when the actor has tried hard to attain a highly positive goal, and nevertheless fails. Sympathy is also experienced (although to a lower degree) when a positive goal is not attained and the observed person has invested only little effort. Hence, main effects are obtained for ought (F = 58, η^2 = 0.06), goal attainment (F = 287, η^2 = 0.18) and effort (F = 128, η^2 = 0.05). Significant interactions arise for ought x goal attainment (F = 250, η^2 = 0.16), ought x effort (F = 92, η^2 = 0.04), goal attainment x effort (F = 77, η^2 = 0.04) as well as for ought x goal attainment x effort (F = 100, η^2 = 0.05).

Anger, contempt, disgust and indignation emerge

predominantly in situations involving a normatively negative goal. Thus, a main effect of ought is obtained (anger: F = 185, η^2 = 0.39, contempt: F = 209, η^2 = 0.52, disgust: F = 150, η^2 = 0.47, indignation: F = 271, η^2 = 0.46). For anger, additional variance is explained by effort (F = 32, η^2 = 0.02). Moreover, anger, contempt, disgust and indignation are experienced to a higher degree when a negative goal is actually attained, as can be seen from the interaction of ought x goal attainment (anger: F = 50, η^2 = 0.03, contempt: F = 32, η^2 = 0.01, disgust: F = 46, η^2 = 0.01, indignation: F = 72, η^2 = 0.04). With regard to positive moral standards, interactions of ought x effort are obtained for anger, contempt and indignation: These emotions are more likely when only little effort has been invested to attain a positive goal (anger: F = 55, η^2 = 0.04, contempt: F = 48, η^2 = 0.01, indignation: F = 64, η^2 = 0.03). Furthermore, slightly lower degrees of these emotions are obtained with regard to negative moral standards when effort has not been invested. This occurs for negative goals, regardless of whether they were attained and non-attained.

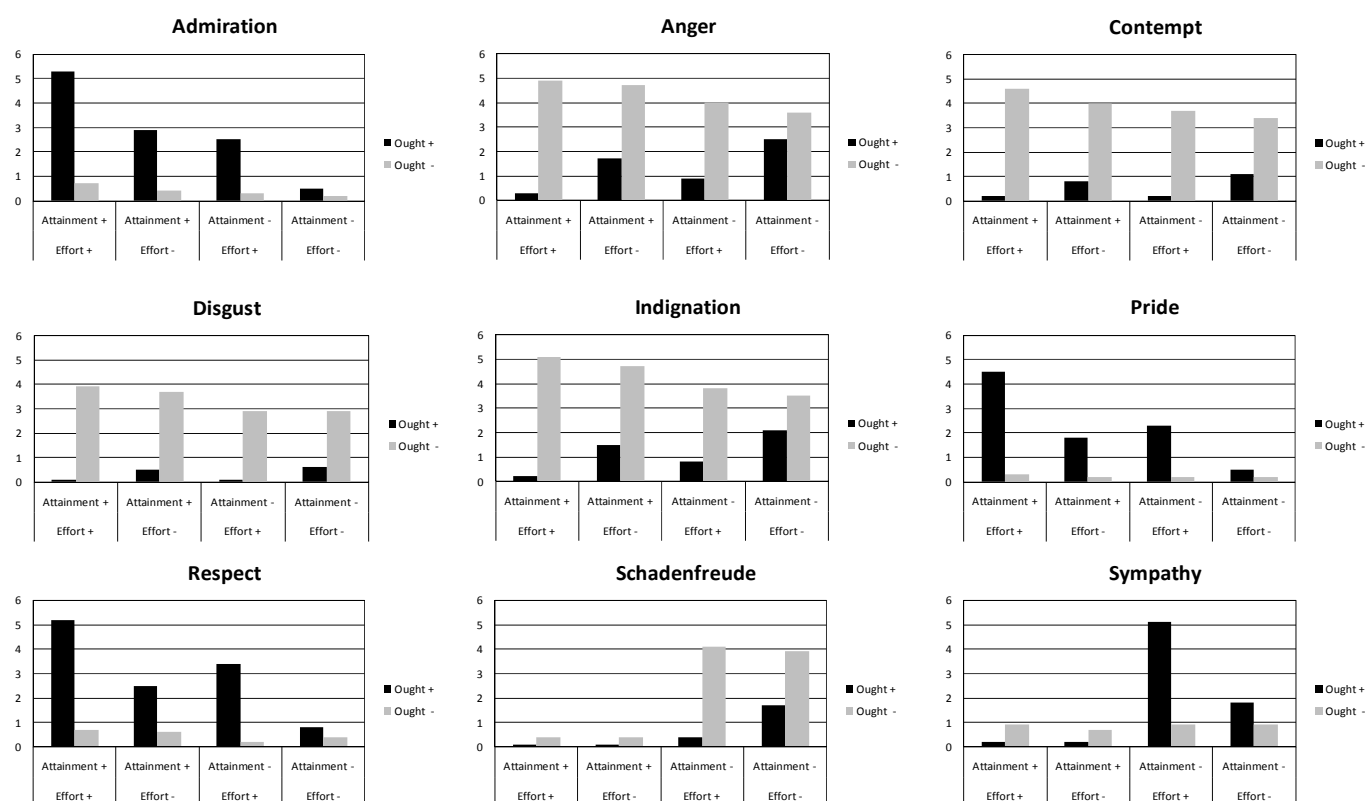


FIGURE 1. MEAN VALUES FOR MORAL OBSERVER EMOTIONS IN STUDY 1.

Finally, *schadenfreude* is most likely when a negative goal is not attained. It is also experienced when a positive goal is not attained and the observed person has invested only little effort to attain this goal. Thus, *schadenfreude* is determined by both main effects of goal attainment ($F = 170$, $\eta^2 = 0.29$) and ought ($F = 205$, $\eta^2 = 0.15$), as well as interactions of ought x goal attainment ($F = 127$, $\eta^2 = 0.10$) and ought x effort ($F = 18$, $\eta^2 = 0.01$).

2) Cluster Analyses

Hierarchical Cluster Analyses were used to analyze differences and similarities between moral emotions. The eight situations presented (representing the eight cells of our design, with O+/- * GA +/- * E+/-) served as independent variables. Moral emotions were clustered according to their intensity in each of the eight situations. Average linkage was chosen as a cluster algorithm, because (a) it is less influenced by extreme values than other methods, and (b) it is resistant to several types of potential errors in cluster calculation (Bacher, 2002; Backhaus, 2000; Milligan, 1980; Shao, Tanner, Thompson, & Cheatham, 2007). As we were interested in the similarities of the profiles of the respective emotions rather than their absolute

differences, Pearson correlations were used as measure of similarity (Backhaus, 2000; Clatworthy, Buick, Hankins, Weinman, & Horne, 2005). The elbow criterion (see Backhaus, 2000) was applied to determine the best cluster solution.

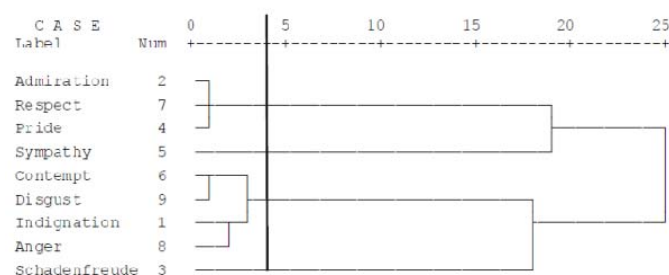


FIGURE 2. CLUSTER ANALYSIS (DENDROGRAM) FOR MORAL OBSERVER EMOTIONS (STUDY 1).

Figure 2 shows the optimal cluster solution for our data, consisting of a two-cluster solution (cluster 1: admiration, pride, and respect; cluster 2: anger, contempt, disgust, and indignation), accompanied by two distinct emotions (sympathy, *schadenfreude*). The vertical line represents the optimal stopping point of the merging process and was determined by using the elbow criterion.

We assessed the validity and global fit of the

cluster solution. First, tests of cluster homogeneity were conducted for each cluster: According to Backhaus (2000) F -values < 1 indicate good homogeneity. For each cluster, we conducted eight tests of homogeneity, one for each cell of our experimental design. Both clusters can be regarded as homogeneous: Only two of the 16 F -values are slightly higher than 1 (cluster 1: $F = 1.17$ for O, +GA, +E-, cluster 2: $F = 1.13$ for O+, GA-, E-). With regard to the remaining experimental situations, the mean value of homogeneity for cluster 1 (admiration, pride, respect) is $F = 0.40$. For cluster 2 (anger, contempt, disgust, indignation) a mean of $F = 0.65$ was obtained. Second, as recommended by Backhaus (2000), we replicated the analysis by using different cluster algorithms (e.g., single linkage, complete linkage, median) as well as different distance measures (e.g., Euclidean Distance, Squared Euclidean Distance, Block). Entirely analogous cluster solutions were obtained. To further analyze the global fit of the cluster solution, the cophenetic correlation (Bacher, 2002; Ketchen & Hult, 2000) was calculated, showing that our cluster solution provides an excellent fit ($r_{\text{coph}} = 0.97$, $p < 0.001$). As a test of reliability, we conducted the same type of cluster analysis by randomly selecting cases from the total sample using "split-half" and "montecarlo" methods. For split-half, a cophenetic correlation of $r_{\text{coph}} = 0.96$ ($p < 0.001$) was obtained. For montecarlo, the cophenetic correlation is $r_{\text{coph}} = 0.96$ ($p < 0.001$), reflecting excellent reliability.

Third, we analyzed the relationships between the two clusters and the two distinct moral emotions: As Figure 2 shows, schadenfreude and sympathy represent distinct emotions that are independent of the respective clusters. However, schadenfreude seems to be closer to cluster 2, and sympathy closer to cluster 1. Hence, we correlated the two distinct emotions with the two clusters. Schadenfreude is positively correlated to cluster 2 ($r = 0.38$, $p < 0.001$) and negatively correlated to cluster 1 ($r = -.37$, $p < 0.001$). In contrast, sympathy correlates positively with cluster 1 ($r = 0.12$, $p < 0.05$), and negatively with cluster 2 ($r = -.15$, $p < 0.05$). As already mentioned, we also conducted cluster analyses using distance measures (e.g., the mean squared Euclidean distance, mEd^2) to compare the differences of the two distinct emotions with regard to the two clusters. Schadenfreude shows greater distance to cluster 2 (anger, contempt,

disgust, indignation), whereas sympathy shows greater distance to cluster 2 and less distance to cluster 1 (a summary of the respective distance values is available upon request).

To conclude, our results imply that the obtained cluster solution is characterized by an excellent global fit. Additionally, the data indicate that sympathy is more similar to cluster 1, whereas schadenfreude is more similar to cluster 2. Finally, the present cluster analyses clearly replicate the analyses of variance described above, as emotions belonging to the same cluster show similar patterns within the respective ANOVAs (see Figure 1). Before discussing these results in detail, we now turn to the cognitive antecedents of moral actor emotions.

STUDY 2

Method

1) Participants

Sixty-one psychology students (45 female, 16 male) from the University of Chemnitz, Germany, received course credit for participating in this study. Their age ranged from 19 to 46 ($M = 23.57$) years. Sessions were run in groups of five (using a paper-pencil questionnaire) and lasted approximately 30 minutes.

2) Experimental Design

As in Study 1, we varied the concepts of ought (a highly positive versus a highly negative goal), goal attainment (participants imagined that they did or did not manage to reach this goal), and effort (participants imagined they had invested a lot of versus only little effort to achieve this goal). Scenarios were written in second person perspective, for example: "You want to attain a highly positive goal. You succeed. You invested a lot of effort to attain this goal." Hence, in contrast to Study 1, participants were asked to imagine themselves as acting in the described ways, and to evaluate their own emotions as an actor. As dependent variables, participants evaluated moral actor emotions, i.e., embarrassment, guilt, pride, regret, and shame. Again, participants' task was to rate how likely it would be that they feel these emotions (see also Footnote 2). An 8-point rating scale labeled with 0 (*not at all*) and 7 (*extremely*) was provided. Randomization, presentation of materials, and procedure were identical to Study 1.

Results

As in Study 1, we analyzed the eight scenarios by $2 \times 2 \times 2$ repeated measures ANOVAs with the factors ought, goal attainment, and effort. In addition, we conducted hierarchical Cluster Analyses to explore differences and similarities between the moral actor emotions. The same statistical criteria for both ANOVAs and Cluster Analyses were chosen as in Study 1. Again, analyses revealed no influence of age, gender and presentation order on any of the dependent variables.

1) Analyses of Variance

ANOVA results and effect sizes are provided in Table 2; mean values for the respective emotions are presented in Figure 3 (tables with means and standard deviations are available upon request). As *Embarrassment*, *guilt*, and *shame* are typically experienced when a goal is not attained, especially for positive goals.

Hence, these emotions are in Study 1, the amount of variance explained by the three independent variables is large (41 % on average), ranging from 26 % (regret) to 72 % (pride). Again, the respective independent variables do not contribute equally to the prediction of the emotions. determined by main effects of goal attainment (embarrassment: $F = 139$, $\eta^2 = 0.26$, guilt: $F = 91$, $\eta^2 = 0.15$, shame: $F = 125$, $\eta^2 = 0.20$) and ought (guilt: $F = 34$, $\eta^2 = 0.06$, regret: $F =$

30, $\eta^2 = 0.07$, shame: $F = 21$, $\eta^2 = 0.03$). Moreover, with regard to non-attained positive goals, embarrassment and guilt are stronger when only little effort has been invested, whereas shame is stronger when much effort has been invested, as can be seen from the interactions of ought \times effort (embarrassment: $F = 16$, $\eta^2 = 0.01$, guilt: $F = 43$, $\eta^2 = 0.02$, shame: $F = 22$, $\eta^2 = 0.01$). Embarrassment, guilt, and shame are additionally characterized by an interaction of ought \times goal attainment, as they are also experienced when negative goals are attained (embarrassment: $F = 40$, $\eta^2 = 0.06$, guilt: $F = 151$, $\eta^2 = 0.13$, shame: $F = 94$, $\eta^2 = 0.10$).

The data pattern for *regret* is similar to the patterns of embarrassment, guilt, and shame; however, there are some differences as well. First, regret is not only determined by main effects of ought ($F = 30$, $\eta^2 = 0.07$) and goal attainment ($F = 55$, $\eta^2 = 0.05$), but also by a main effect of effort ($F = 49$, $\eta^2 = 0.02$). Thus, regret is experienced (at least to some degree) for all negative goals. However, it is most likely for the non-attainment of positive goals, and even more so if only little effort has been invested. These observations are supported by interactions of ought \times goal attainment ($F = 51$, $\eta^2 = 0.06$), ought \times effort ($F = 43$, $\eta^2 = 0.02$), and an interaction of ought \times goal attainment \times effort ($F = 23$, $\eta^2 = 0.01$).

Pride is experienced when both positive and negative goals are actually attained, even more so

TABLE 2. ANALYSES OF VARIANCE FOR ACTOR EMOTIONS (STUDY 2): F-VALUES AND η^2 FOR MAIN EFFECTS AND INTERACTIONS FOR OUGHT, GOAL ATTAINMENT, AND EFFORT.

Emotion	Source														
	Ought		Goal Attainment		Effort		Ought x Goal Attainment		Ought x Effort		Goal Attainment x Effort		Ought x Goal Attainment x Effort		
	F	η^2	F	η^2	F	η^2	F	η^2	F	η^2	F	η^2	F	η^2	η^2_{Treat}
Embarrassment	6.69**	0.00	139.36** *	0.26	3.12	0.00	39.88***	0.06	15.58***	0.01	10.53**	0.01	< 1	0.00	0.34
Guilt	34.44***	0.06	90.69***	0.15	8.99**	0.00	151.26** *	0.13	43.28***	0.02	3.15	0.00	4.43*	0.00	0.37
Pride	88.28***	0.05	543.70** *	0.53	73.78***	0.03	95.93***	0.06	36.81***	0.01	59.22***	0.02	13.07***	0.00	0.72
Regret	29.58***	0.07	54.49***	0.05	48.79***	0.02	51.00***	0.06	42.77***	0.02	21.74***	0.00	22.51***	0.01	0.26
Shame	20.99***	0.03	125.21** *	0.20	1.96	0.00	94.11***	0.10	21.47***	0.01	5.88*	0.00	2.02	0.00	0.34
$M (\eta^2)$		0.04		0.24		0.01		0.08		0.01		0.01		0.00	0.41

a. η^2 = explained variance for each individual factor in the experimental design; η^2_{Treat} = explained variance by treatment factor; $\eta^2_{Between}$ = percentage inter-subject variance; η^2_{Error} = percentage error variance; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, all $df = (1,60)$.

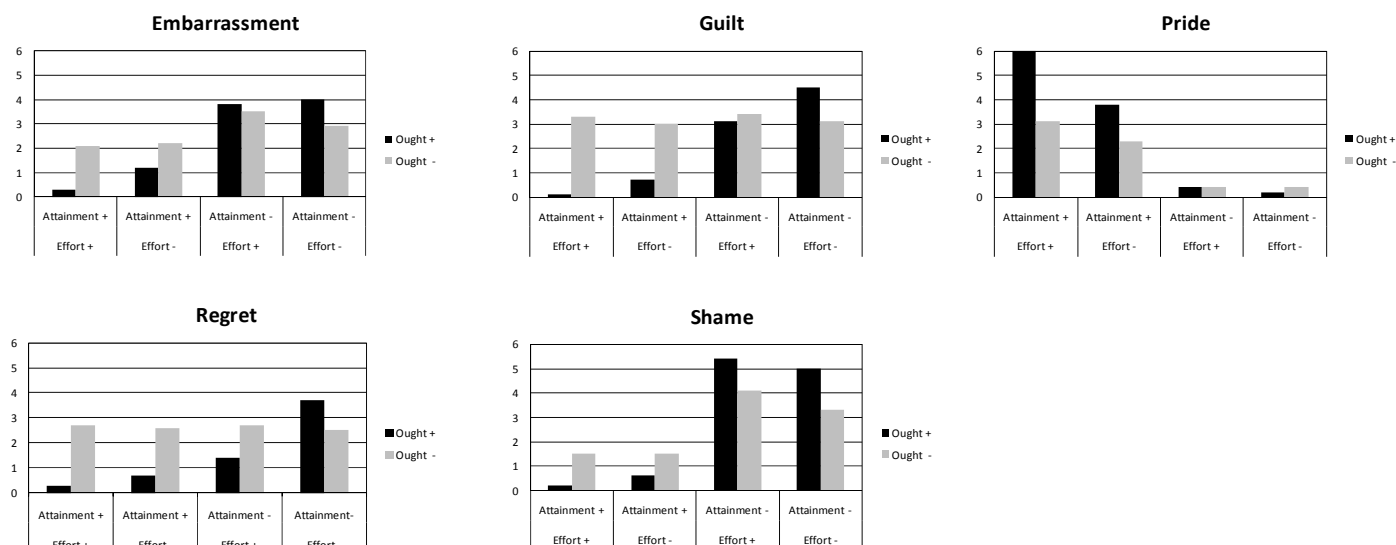


FIGURE 3. MEAN VALUES FOR MORAL ACTOR EMOTIONS IN STUDY 2.

for positive goals given that high effort has been invested. That is, pride varies upon goal attainment ($F = 544$, $\eta^2 = 0.53$), ought ($F = 88$, $\eta^2 = 0.05$), and effort ($F = 74$, $\eta^2 = 0.03$). These main effects are further qualified by interactions of ought \times goal attainment ($F = 96$, $\eta^2 = 0.06$), ought \times effort ($F = 37$, $\eta^2 = 0.01$), and goal attainment \times effort ($F = 59$, $\eta^2 = 0.02$).

2) Cluster Analyses

As in Study 1, we analyzed the eight scenarios by $2 \times 2 \times 2$ repeated measures ANOVAs with the factors ought, goal attainment, and effort. In addition, we conducted hierarchical Cluster Analyses to explore differences and similarities between the moral actor emotions. The same statistical criteria for both ANOVAs and Cluster Analyses were chosen as in Study 1. Again, analyses revealed no influence of age, gender and presentation order on any of the dependent variables.

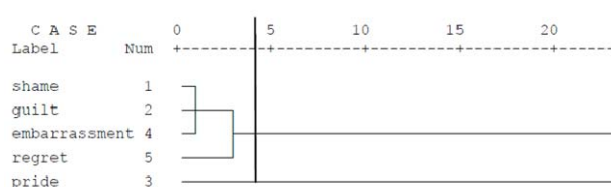


FIGURE 4. CLUSTER ANALYSIS (DENDOGRAM) FOR MORAL ACTOR EMOTIONS (STUDY 2).

As can be seen from Figure 4, regret is merged later into the cluster as compared to embarrassment,

guilt, and shame (thus indicating some difference, as also suggested by the ANOVAs). However, regret still shows a positive average correlation ($r = 0.71$, $p < 0.001$) with the other members of the cluster. In contrast, pride is a highly distinct emotion, as is underlined by the negative correlation to cluster 1 ($r = -.56$, $p < 0.001$). This cluster solution is confirmed when using different cluster algorithms and distance measures. The cophenetic correlation ($r_{\text{coph}} = 0.99$; $p < 0.001$) shows a very good global fit. The results are completely replicated for the split half ($r_{\text{coph}} = 0.99$, $p < 0.001$) as well as for the montecarlo ($r_{\text{coph}} = 0.99$, $p < 0.001$) method.

DISCUSSION OF STUDY 1 AND STUDY 2

To summarize, the three concepts identified by Heider's naïve action analysis – ought, goal attainment, and effort – explain a large amount of variance in the emergence of moral emotions. For observer emotions, ought is the factor explaining the largest amount of variance. Negative observer emotions (anger, contempt, disgust, indignation) are predominantly explained by ought. For positive observer emotions, goal attainment and effort explain substantial amounts of additional variance. That is, for negative goals (O-) of others, it is less important whether this goal has actually been attained and how much effort the observed person invested. Exceptions from this rule are schadenfreude and sympathy, which strongly depend on goal attainment and effort as well.

A quite different data pattern is found for actor emotions, as here goal attainment exerts the strongest influence. Hence, moral standards represented by ought seem to be more readily applied to other people than to oneself. Both informational as well as self-serving reasons may account for this finding: On one hand, when persons judge themselves, more information – e.g., potential excuses, additional reasons, or mitigating circumstances for not adhering to social norms – is available, thus subjectively reducing the ought-component. A self-serving bias (for a summary, see Malle, 2006) may play a role here as well: Hence, situational factors for not adhering to moral standards can be seen as self-serving, and may lead to a greater influence of goal attainment within the moral-emotional landscape of the actor. In contrast, situational components for not adhering to moral standards might be salient only to a lesser degree from the observer perspective; therefore, moral standards are applied more strictly to other people.

As expected, admiration, pride (as an observer emotion), and respect typically occur when observed others attain morally positive goals (O+, GA+), especially when effort has been invested (E+). Furthermore, sympathy is typically elicited when the observed person has tried hard to attain a morally positive goal (O+, E+), but nevertheless fails (GA-). Anger, contempt, disgust, and indignation emerge in situations either characterized by a negative moral standard (O-), or a positive moral standard (O+) given that only little effort has been invested (E-). Similarly, schadenfreude is predominantly elicited when a negative goal is not attained (O-, GA-), or when a positive goal is not attained (O+, GA-) due to low effort (E-).

Moreover, pride (as an actor emotion) is most likely when a morally positive goal was attained (O+, GA+) and high effort has been invested (E+). The negative moral actor emotions of embarrassment, guilt, shame, and regret are typically elicited in case of negative goals (O-), but also with regard to non-attained positive goals (O+; GA-), especially when only little effort has been invested.

Thus far, we have used abstract scenarios, and participants received only minimal information about the respective situations. Although previous research indicates that this method does not necessarily influence the obtained results (e.g., Ekman, 1984; Rudolph et al., 2004, see also Wilson & Linville, 1982), our goal now is to investigate whether the present

findings are obtained for more real-life situations as well. Therefore, in Study 3 and 4, we will use situations derived from autobiographical recollections involving moral emotions.

STUDY 3

Method

1) Participants

Seventy-five psychology students (60 female, 15 male) of the University of Chemnitz received course credits for participating in this study. Their age ranged from 18 to 46 ($M = 22.00$).

2) Experimental Design

As in Study 1 and 2, Heider's concepts of ought, goal attainment, and effort were varied as independent variables. In contrast to Studies 1 and 2, we used 16 scenarios describing real-life events which manipulated the three independent variables. Furthermore, we varied the involvement of the observer (see Hauser, 2006): That is, we selected eight situations characterized by a receiver perspective (i.e., participants being the target of the action of the observed person).

In contrast, the remaining eight situations involved an observer perspective (i.e., participants being a mere observer). The resulting selection of situations is available upon request. As dependent variables, participants rated to which degree they felt admiration, anger, contempt, indignation, pride, respect, schadenfreude, and sympathy elicited by the scenario⁴. Situations were presented in two random sequences, with each scenario on a separate sheet.

3) Procedure

To generate a sample of situations manipulating ought, goal attainment, and effort, we proceeded as follows: (1) We generated five scenarios for each combination of ought, goal attainment, and effort by asking randomly selected respondents ($N = 24$) to recollect autobiographical events in which they had experienced any moral emotion. (2) Subsequently, we asked 10 independent raters to assess these situations with regard to ought, goal attainment, and effort, rating the normative aspect

⁴ We excluded disgust from Study 3 because this emotion is connected to highly specific contexts (Gutierrez & Giner-Sorolla, 2007) and thus difficult to assess with scenarios which should elicit a wide range of possible emotions.

of the situation (ought), the degree of goal attainment, and the invested effort (effort) for each scenario by using 6-point rating scales anchored at both ends (ought: 1 = *very negative*, 6 = *very positive*; goal attainment: 1 = *goal not attained at all*, 6 = *goal completely attained*; effort: 1 = *no effort*, 6 = *high effort*). (3) We chose the 16 scenarios (two for each combination of ought, effort and goal attainment, respectively) providing the best fit to the intended manipulations.

Participants received an instruction sheet explaining the overall procedure and rating scales. They were asked to imagine the situations as vividly as possible and to evaluate the degree to which they would experience the different moral emotions in the respective situation. A 6-point rating scale anchored at both ends (1 = *not at all*) and (6 = *very strongly*) was provided. As a manipulation check (using the same rating scale), participants were asked to rate the normative aspect of the situation (ought), the goal attainment, and the invested effort for each specific scenario.

Results

As for Studies 1 and 2, we conducted $2 \times 2 \times 2$ repeated measures ANOVAS and hierarchical cluster analyses. Furthermore, to allow for comparisons between Studies 1 and 3, correlation analyses were performed. Additionally, mixed ANOVAS and t-tests were conducted to investigate potential influences of perspective (receiver vs. observer), control variables and to assess the quality of our experimental manipulation.

1) Control Variables and Manipulation Checks

Analyses reveal that there is no influence of gender and presentation order on any of the dependent variables. Therefore, we will not consider these factors in the following analyses. In addition, we conducted manipulation checks to ensure that ought, goal attainment, and effort were manipulated as intended. For this purpose, t-tests for dependent samples were conducted:

(1) The positive ought conditions received significantly higher ratings ($M = 5.78$, $SD = 0.27$) as compared to the negative ought conditions ($M = 1.29$, $SD = 0.40$), $t(74) = 64.90$, $p < 0.001$, $d = 13.2$.

(2) The "goal attained" conditions received significantly higher ratings ($M = 5.82$, $SD = 0.28$) as compared to the "goal not attained" conditions ($M = 1.66$, $SD = 0.44$), $t(74) = 62.87$, $p < 0.001$, $d = 11.3$.

(3) The high effort condition received significantly higher ratings ($M = 5.58$, $SD = 0.36$) as compared to the low effort conditions ($M = 2.07$, $SD = 0.78$), $t(74) = 33.13$, $p < 0.001$, $d = 5.7$.

Finally, the factor "perspective" revealed only minor effects with very small effect sizes (revealing slightly higher degrees of the experienced emotions for receivers). Thus, for the sake of simplicity and better comparability of the studies, we will not include "perspective" as a factor within the following analyses.

2) Analyses of Variance

ANOVA results and effect sizes are provided in Table 3. The respective means for each dependent variable are illustrated in Figure 5. (Tables with means and standard deviations are available upon request).

The three independent variables on average explain 64 % of variance, ranging from 37 % (sympathy) to 81 % (admiration). Again, some emotions show similar patterns (e.g., admiration, pride and respect), while other emotions (e.g., schadenfreude and sympathy) are characterized by unique ANOVA patterns.

Admiration, pride, and respect are experienced when a positive goal is attained, and even more so when effort has been invested. Hence, admiration, pride and respect are determined by main effects of ought (admiration: $F = 1138$, $\eta^2 = 0.41$, pride: $F = 177$, $\eta^2 = 0.21$, respect: $F = 892$, $\eta^2 = 0.43$), goal attainment (admiration: $F = 479$, $\eta^2 = 0.18$, pride: $F = 77$, $\eta^2 = 0.09$, respect: $F = 279$, $\eta^2 = 0.14$) and effort (admiration: $F = 89$, $\eta^2 = 0.02$, pride: $F = 96$, $\eta^2 = 0.04$, respect: $F = 150$, $\eta^2 = 0.04$), qualified by significant interactions of ought \times goal attainment (admiration: $F = 424$, $\eta^2 = 0.16$, pride: $F = 114$, $\eta^2 = 0.12$, respect: $F = 260$, $\eta^2 = 0.13$). These emotions are also experienced to a moderate degree when another person has invested a lot of effort vis-à-vis a positive goal, but nevertheless does not attain this goal, as can be seen from significant interactions of ought \times effort (admiration: $F = 73$, $\eta^2 = 0.02$, pride: $F = 119$, $\eta^2 = 0.04$, respect: $F = 101$, $\eta^2 = 0.03$).

Furthermore, observers are most likely to feel *sympathy* when the actor has tried hard to attain a positive goal and nevertheless fails. Sympathy is also felt, but to a substantially lower degree, when a positive goal is not attained and a person has invested only little effort. Thus, for sympathy, there are main effects for ought ($F = 21$, $\eta^2 = 0.03$), goal

TABLE 3. ANALYSES OF VARIANCE FOR OBSERVER EMOTIONS IN REALISTIC SCENARIOS: F-VALUES AND H^2 (MAIN EFFECTS AND INTERACTIONS) FOR OUGHT, GOAL ATTAINMENT, AND EFFORT.

Source																
	Ought		Goal Attainment		Effort		Ought x Goal Attainment		Ought x Effort		Goal Attainment x Effort		Ought x Goal Attainment x Effort			
Emotion	<i>F</i>	η^2	<i>F</i>	η^2	<i>F</i>	η^2	<i>F</i>	η^2	<i>F</i>	η^2	<i>F</i>	η^2	<i>F</i>	η^2	η^2_{Treat}	η^2_{Between}
Admiration	1138.36***	0.41	479.31***	0.18	89.12***	0.02	423.66***	0.16	72.45***	0.02	39.34***	0.01	53.44***	0.01	0.81	0.03
Anger	652.95***	0.43	140.81***	0.08	146.93***	0.04	233.62***	0.10	114.37***	0.03	53.02***	0.02	124.79**	0.03	0.73	0.07
Contempt	899.98***	0.61	6.89*	0.00	5.23*	0.00	64.51***	0.03	66.13***	0.03	34.74***	0.01	16.91***	0.00	0.68	0.11
Indignation	1020.89***	0.56	56.76***	0.03	82.37***	0.03	134.08***	0.06	77.61***	0.02	70.00***	0.02	56.08***	0.02	0.74	0.08
Pride	177.02***	0.21	76.82***	0.09	96.41***	0.04	114.50***	0.12	119.49***	0.04	0.39***	0.00	0.55	0.00	0.50	0.13
Respect	892.11***	0.43	279.59***	0.14	150.30***	0.04	260.16***	0.13	100.64***	0.03	22.90***	0.00	36.24***	0.01	0.78	0.04
Schadenfreude	105.48***	0.13	158.00***	0.20	10.00**	0.00	60.80***	0.09	3.16	0.00	18.68***	0.01	9.78**	0.00	0.43	0.08
Sympathy	20.83***	0.03	183.05***	0.11	64.24***	0.04	146.47***	0.11	50.50***	0.04	15.37***	0.01	49.16***	0.03	0.37	0.21
<i>M</i> (η^2)		0.36		0.10		0.02		0.10		0.02		0.02		0.02	0.64	0.90

a. η^2 = explained variance for each individual factor in the experimental design; η^2_{Treat} = explained variance by treatment factor; η^2_{Between} = percentage inter-subject variance; η^2_{Error} = percentage error variance; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, all $df = (1,59)$.

attainment ($F = 183$, $\eta^2 = 0.11$), and effort ($F = 64$, $\eta^2 = 0.04$), qualified by significant interactions of ought x goal attainment ($F = 146$, $\eta^2 = 0.11$), ought x effort ($F = 50$, $\eta^2 = 0.04$), goal attainment x effort ($F = 15$, $\eta^2 = 0.01$), and ought x goal attainment x effort ($F = 49$, $\eta^2 = 0.03$).

Anger, *contempt*, and *indignation* most typically arise in situations involving a normatively negative goal. Thus, for all these emotions, a main effect of ought is obtained (anger: $F = 653$, $\eta^2 = 0.43$, contempt: $F = 900$, $\eta^2 = 0.61$, indignation: $F = 1020$, $\eta^2 = 0.56$). Moreover, anger, contempt, disgust and indignation are also experienced when a positive goal is not attained and no effort has been invested, as confirmed by interactions of effort x goal attainment (anger: $F = 39$, $\eta^2 = 0.01$, contempt: $F = 35$, $\eta^2 = 0.01$, indignation: $F = 70$, $\eta^2 = 0.02$) and ought x goal attainment (anger: $F = 234$, $\eta^2 = 0.10$, contempt: $F = 65$, $\eta^2 = 0.03$, indignation: $F = 134$, $\eta^2 = 0.06$). Anger and indignation are also reported (again, to a much lower degree) when a person does not attain a positive goal but has invested a lot of effort. Thus, main effects for goal attainment (anger: $F = 140$, $\eta^2 = 0.08$, indignation: $F = 57$, $\eta^2 = 0.03$) and

effort (anger: $F = 146$, $\eta^2 = 0.04$, indignation: $F = 82$, $\eta^2 = 0.03$) are obtained for these two emotions.

Schadenfreude is most likely to occur when a normatively negative goal is not attained, especially if the other person has tried hard to attain this goal. Thus, *schadenfreude* is determined by both main effects of goal attainment ($F = 158$, $\eta^2 = 0.20$) and ought ($F = 105$, $\eta^2 = 0.13$), as well as interactions of ought x goal attainment ($F = 61$, $\eta^2 = 0.09$) and goal attainment x effort ($F = 19$, $\eta^2 = 0.01$).

3) Cluster Analyses

As for Studies 1 and 2, we used hierarchical Cluster Analyses to explore differences and similarities between different moral emotions. To allow for comparisons between Studies 1 and 2, the same statistical procedures and methods were used. Apart from the fact that *disgust* is no longer investigated, the structure of the cluster solution is identical to the cluster solution in Study 1: Admiration, pride, and respect constitute cluster 1; cluster 2 contains anger, contempt, and indignation. *Schadenfreude* and sympathy are distinct emotions. (Due to space limitations, we do not present a

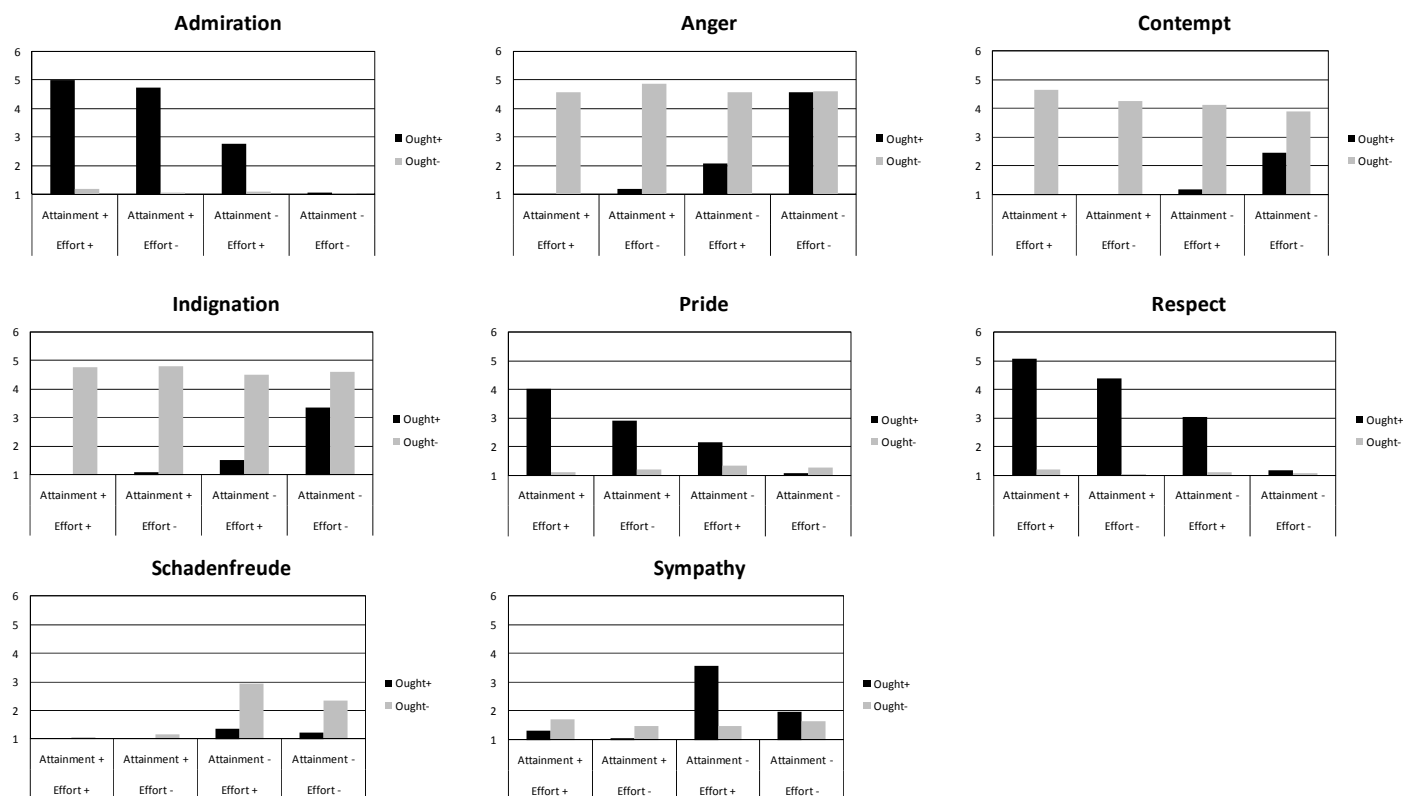


FIGURE 5. MEAN VALUES FOR MORAL OBSERVER EMOTIONS IN STUDY 3.

Figure for this cluster solution; the dendrogram is available upon request.)

Tests of cluster homogeneity, again conducted separately for the eight cells of our experimental design, indicate that both clusters are homogenous: Only two of the 16 F -values were slightly higher than 1 (both cases occurred for $O +$, $GA -$, $E +$; $F = 1.01$ for cluster 1, $F = 1.04$ for cluster 2). For cluster 1 (admiration, pride, respect) a mean value of $F = 0.35$ is obtained. For cluster 2 (anger, contempt, indignation) the mean value is $F = 0.48$. The cophenetic correlation of $r_{\text{coph}} = 0.95$ ($p < 0.001$) confirms that our cluster solution represents an excellent fit. The high reliability of this result is demonstrated when using the split half ($r_{\text{coph}} = 0.94$, $p < 0.001$) as well as the montecarlo method ($r_{\text{coph}} = 0.94$, $p < 0.001$).

We also analyzed the relationships between the two clusters and the two distinct moral emotions. Schadenfreude (as in Study 1) appears to be more similar to cluster 2, whereas sympathy appears to be more similar to cluster 1: Schadenfreude is positively correlated to cluster 2 ($r = 0.27$, $p < 0.001$) and negatively correlated to cluster 1 ($r = -.27$, $p < 0.001$). No correlations were found for sympathy.

However, in contrast to Study 1, schadenfreude and sympathy show slightly greater distances (mEd^2) to cluster 2 (anger, contempt, indignation) and smaller distances to cluster 1 (admiration, pride, respect). (The exact mEd^2 statistics are available upon request).

Taken together, these results imply that the two clusters are highly homogeneous and that our cluster solution has a very good global fit. It is only for sympathy and *schadenfreude* and their specific relations to the two clusters that slightly different results are obtained (as compared to Study 1).

Similarities Between Study 1 and 3

In order to compare the results of Studies 1 (abstract scenarios) and 3 (realistic situations), the standardized mean values obtained for each experimental condition were correlated separately for each emotion. Data were z-standardized prior to correlations to allow for comparisons. For all emotions, very large effects were obtained (admiration: $r = 0.95$, $p < 0.001$, pride: $r = 0.95$, $p < 0.001$, respect: $r = 0.93$, $p < 0.01$, sympathy: $r = 0.80$, $p < 0.05$, anger: $r = 0.89$, $p < 0.01$, contempt: $r = 0.97$, $p < 0.001$, indignation: $r = 0.81$, $p < 0.05$, schadenfreude: $r = 0.95$, $p < 0.001$). Thus, Study 3 represents a very close

replication of Study 1.

We will now report a study investigating the concepts of ought, goal attainment, and effort in realistic contexts for moral actor emotions.

STUDY 4

Method

1) Participants

Fifty-one psychology students (42 female, 9 male) of the University of Chemnitz received course credits for participating in this study. Their age ranged from 18 to 46 ($M = 22.29$).

2) Experimental Design

Again, ought, goal attainment, and effort were varied as independent variables. We used the same 16 situations as in Study 3 (all materials are available upon request); however, we transformed the items from the observer into an actor perspective. For example, a situation with a positive ought, high effort, and attained goal is: "You want to be a good mother/father. You have to work very hard in your job, but you spend every spare minute with your children and care a lot. The children are doing very well and are very happy." As dependent variables, we presented the moral actor emotions embarrassment, guilt, pride, regret, and shame.

3) Procedure

We used the same instructions and procedures as in Study 3, the only difference being that participants received two situations for each combination of ought, effort and goal attainment (as there is only one perspective for actor situations).

Results

As for the previous studies, we conducted $2 \times 2 \times 2$ repeated measures ANOVAS and hierarchical cluster analyses. Again, we also conducted correlation analyses to assess the similarities between Studies 2 and 4. Again, mixed ANOVAS and t -tests were conducted to assess the quality of our experimental manipulations and the potential influence of control variables.

1) Control Variables and Manipulation Checks

Again, analyses reveal that there is no influence of gender and presentation order on any of the dependent variables. Therefore, we will not

consider these factors in the following analyses. As in Study 3, we conducted manipulation checks to ensure that ought, effort, and goal attainment were manipulated as intended. For this purpose, t -tests for dependent samples were conducted, comparing means of the two variations of each independent variable. The positive ought conditions received significantly higher ratings ($M = 5.77$, $SD = 0.35$) as compared to the negative ought conditions ($M = 1.28$, $SD = 0.34$, $t(50) = 50.82$, $p < 0.001$, $d = 13.4$), the high effort condition received significantly higher ratings ($M = 5.52$, $SD = 0.40$) as compared to the low effort conditions ($M = 2.20$, $SD = 0.75$, $t(50) = 25.94$, $p < 0.001$, $d = 5.5$), and the goal attained conditions received significantly higher ratings ($M = 5.73$, $SD = 0.34$) as compared to the goal not attained conditions ($M = 1.32$, $SD = 0.41$, $t(50) = 47.59$, $p < 0.001$, $d = 11.8$).

2) Analyses of Variance

ANOVA results and effect sizes are provided in Table 4. The respective means for each dependent variable are illustrated in Figure 6 (corresponding tables with means and standard deviations are available upon request).

The amount of explained variance is large (66 % on average), ranging from 56 % (regret) to 88 % (pride). Embarrassment, guilt, regret, and shame show very similar patterns when analyzed according to the independent variables, while pride is characterized by a unique pattern.

Embarrassment, guilt, regret, and shame are experienced when someone has tried to do something negative. Hence, these emotions are determined by a main effect of ought (embarrassment: $F = 35$, $\eta^2 = 0.05$, guilt: $F = 86$, $\eta^2 = 0.13$, regret: $F = 116$, $\eta^2 = 0.21$, shame: $F = 113$, $\eta^2 = 0.17$). They are also experienced when positive goals are not attained, and therefore are also determined by main effects of goal attainment (embarrassment: $F = 493$, $\eta^2 = 0.47$, guilt: $F = 356$, $\eta^2 = 0.27$, regret: $F = 133$, $\eta^2 = 0.16$, shame: $F = 346$, $\eta^2 = 0.27$) and the interaction of ought x goal attainment (embarrassment: $F = 63$, $\eta^2 = 0.06$, guilt: $F = 575$, $\eta^2 = 0.25$, regret: $F = 178$, $\eta^2 = 0.13$, shame: $F = 190$, $\eta^2 = 0.17$). These emotions are even stronger, when only little effort has been invested in a positive goal which is further qualified by interactions of ought x effort (embarrassment: $F = 25$, $\eta^2 = 0.01$, regret: $F = 22$, $\eta^2 = 0.01$, shame: $F = 49$, $\eta^2 = 0.01$), effort x goal attainment (guilt: $F = 33$, $\eta^2 = 0.01$, regret: $F = 41$, $\eta^2 = 0.01$) and ought x goal attainment x effort

TABLE 4. ANALYSES OF VARIANCE FOR OBSERVER EMOTIONS IN REALISTIC SCENARIOS: F-VALUES AND η^2 (MAIN EFFECTS AND INTERACTIONS) FOR OUGHT, GOAL ATTAINMENT, AND EFFORT.

Source																	
	Ought		Goal Attainment		Effort		Ought x Goal Attainment		Ought x Effort		Goal Attainment x Effort		Ought x Goal Attainment x Effort				
Emotion	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	<i>F</i>	η²	η²Treat	η²Between	η²Error
Embarrassment	34.67**	0.05	492.55***	0.47	2.91	0.00	62.61***	0.06	25.41**	0.01	2.83	0.00	39.37**	0.02	0.61	0.15	0.23
Guilt	85.61***	0.13	355.52***	0.27	31.14**	0.01	574.50***	0.25	2.21	0.00	33.35**	0.01	10.34*	0.00	0.67	0.12	0.20
Pride	493.81***	0.19	821.83***	0.48	49.94***	0.01	475.62***	0.19	0.03	0.00	49.33***	0.01	1.35	0.00	0.88	0.03	0.10
Regret	115.54***	0.21	132.70***	0.16	44.92***	0.02	178.31***	0.13	22.33**	0.01	41.02***	0.01	33.58**	0.02	0.56	0.17	0.27
Shame	113.28***	0.17	346.12***	0.27	3.29	0.00	189.82***	0.14	48.96***	0.01	3.89	0.00	28.48**	0.01	0.60	0.17	0.23
<i>M</i> (η²)		0.15		0.33		0.01		0.15		0.00		0.00		0.01	0.66	0.13	0.21

a. η^2 = explained variance for each individual factor in the experimental design; η^2_{Treat} = explained variance by treatment factor; η^2_{Between} = percentage inter-subject variance; η^2_{Error} = percentage error variance; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, all $df = (1.59)$.

(embarrassment: $F = 39$, $\eta^2 = 0.02$, regret: $F = 34$, $\eta^2 = 0.02$, shame: $F = 28$, $\eta^2 = 0.01$).

Pride is predominantly experienced when positive goals are actually attained, even more so, when high effort has been invested. However, a certain extent of pride is also felt when negative goals are attained. Thus, pride depends on ought (pride: $F = 494$, $\eta^2 = 0.19$), goal attainment (pride: $F = 822$, $\eta^2 = 0.48$), and effort (pride: $F = 50$, $\eta^2 = 0.01$). These main effects are qualified by interactions of ought x goal attainment (pride: $F = 476$, $\eta^2 = 0.19$) and goal attainment x effort (pride: $F = 49$, $\eta^2 = 0.01$).

3) Cluster Analyses

As in Study 2, we obtained one cluster consisting of embarrassment, guilt, shame, and regret. Again, pride represents a distinct emotion. (The shape of the dendrogram closely resembles the shape of Figure 4. The corresponding Figure is available upon request). Tests of cluster homogeneity (again, conducted separately for the eight experimental cells constituted by ought, goal attainment, and effort) revealed that none of the F -values was greater than 1, indicating a highly homogeneous cluster (mean $F = 0.50$).

Pride, again, is a highly distinct emotion, as confirmed by the negative correlation with cluster 1 ($r = -.79$, $p < 0.001$). This cluster solution was confirmed using different cluster algorithms and

distance measures (e.g., mEd^2). The cophenetic correlation of $r_{\text{coph}} = 0.99$ ($p < 0.001$) shows an excellent global fit. Again, results were entirely replicated when using split half ($r_{\text{coph}} = 0.99$, $p < 0.001$) and montecarlo ($r_{\text{coph}} = 0.99$, $p < 0.001$) methods.

Similarities Between Study 2 and 4

We correlated the z-standardized mean values of the moral actor emotions obtained for abstract scenarios (Study 2) and descriptions of real life events (Study 4). Large effects were obtained for all emotions (embarrassment: $r = 0.96$, $p < 0.001$, guilt: $r = 0.98$, $p < 0.001$, regret: $r = 0.97$, $p < 0.001$, shame: $r = 0.94$, $p < 0.01$, pride: $r = 0.89$, $p < 0.01$). The overall correlation of $r = 0.82$, $p < 0.001$ further underlines the great resemblance of the results of both studies.

Discussion of Studies 3 and 4

Study 3 and 4 replicated and extended Study 1 and 2 in several important ways: Ought, goal attainment, and effort are important determinants of moral emotions when analyzing autobiographical recollections of actions and events. The amount of variance explained by these concepts is even higher for these real-life events as compared to the abstract stimulus materials. The data patterns for Studies 1 and 3 on the one hand and Studies 2 and 4 on the other hand are highly similar. A common feature of all these findings (across all studies) is that the moral standard

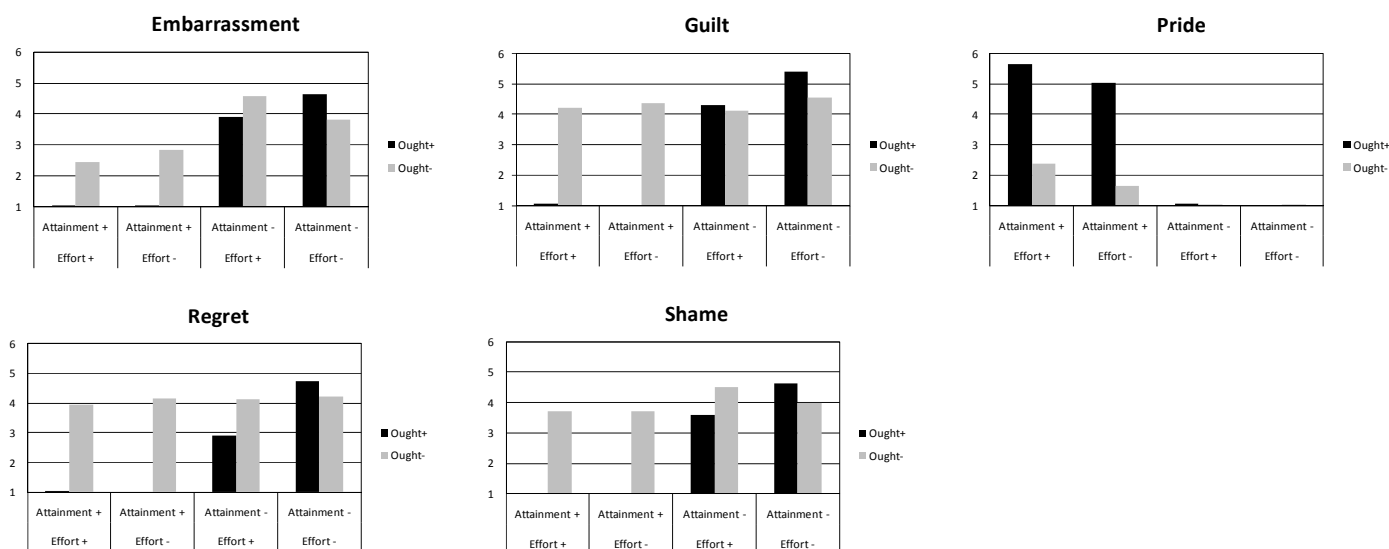


FIGURE 6. MEAN VALUES FOR MORAL ACTOR EMOTIONS IN STUDY 4.

(ought) explains the largest amount of variance for observer emotions, whereas goal attainment is the most powerful predictor of actor emotions.

However, we found some differences between abstract and realistic stimulus materials as well: Concerning anger, goal attainment and effort are more important in realistic situations, especially as more anger is experienced when positive goals are not attained. This is probably due the fact that realistic scenarios, as intended, facilitate the activation of anger (see also Robinson & Clore, 2002). Schadenfreude and sympathy, in contrast, are experienced to a (relatively) lesser degree in realistic situations. This might be because some specific predictors of these emotions have not been manipulated in these scenarios. For example, we did not vary the status of the interaction partners or the deservingness of the non-attainment of the goal (e.g., Feather & Sherman, 2002; Feather, 1999), nor hostile feelings or gender of target (e.g., Van Dijk, Ouwerkerk, Goslinga, Nieweg, & Gallucci, 2006).

GENERAL DISCUSSION

In the present paper, we studied the genesis of moral emotions, namely, admiration, anger, contempt, disgust, embarrassment, guilt, indignation, pride, regret, respect, schadenfreude, shame and sympathy. We varied the moral standard underlying an action, whether the desired goal is actually attained, and whether effort has been invested or not. The present results confirm that ought, goal attainment, and effort explain large amounts of variance in these moral emotions. In addition, the target of the moral-

emotional evaluation is important: From the perspective of the moral observer (when judging other persons), the moral valence of the goal (ought) is the most powerful predictor of moral emotions. From the perspective of the moral actor (when judging one's own actions), in contrast, goal attainment is the most powerful predictor. The degree of effort a person invested in order to attain a positive or negative goal plays a slightly larger role for observers as compared to actors.

Thus, our emotional judgments referring to the actions of others are influenced more strongly by rather deontological considerations inherent in the concepts of ought and effort (Kant, 1998). In contrast, when evaluating our own actions, consequentialist considerations (goal attainment) are given greater importance (see Bentham, 2005; Mill, 2009). In addition to pursuing a morally negative goal, not investing effort to attain a morally positive goal is also related to internalized standards, as it is usually regarded as an ethic principle to invest effort to attain one's goals (e.g., Graham, 1991; Matteucci, 2007; Weiner, 2003). This also implies that ought and effort share certain characteristics, which may be traced back to their common deontological background. When these internalized standards are met (i.e., pursuing positive goals and investing effort), positive moral emotions occur; when these standards are not met, in contrast, negative emotions are elicited. As our data show, these principles are more readily applied to observers as compared to actors. Based on these empirical results, we now propose (1) a classification of moral emotions and (2) pathways for future research in this domain.

A Classification of Moral Emotions

For decades, the field of moral psychology was dominated by a Kantian approach, that is, the analysis of reasoning processes underlying moral judgments. Recent research emphasized the role of moral emotions within these processes (e.g., Greene et al., 2001; Haidt, 2001). While several authors proposed preliminary theoretical classifications of moral emotions (e.g., Haidt, 2003; Tangney et al., 2007; Weiner, 2006), the present research offers the opportunity to test these theoretical propositions with respect to common-sensical (or, in Heider's terms: naïve) conceptualizations of moral emotions (see also Kelley, 1992). As becomes clear now, several moral emotions have similar cognitive antecedents and can be grouped in joint clusters, while other emotions depend upon quite distinct combinations of the antecedent cognitions. In what follows, we will briefly summarize these results.

1) Positive Observer Emotions

Admiration, pride, and respect are strongly connected to the attainment of highly positive goals, especially when high effort has been invested. To a moderate degree, these emotions are also experienced when positive goals are attained in the absence of effort. Likely, effort and ability are regarded as being compensatory (Heider, 1958). Hence, effortless goal attainment will be attributed to high ability: We do not only admire, respect or feel proud of other people for investing effort (a cause regarded as being controllable; (B. Weiner, 1995; B Weiner, 2006), but also for their ability (regarded as being uncontrollable). In addition, these emotions also emerge (although to a lesser degree) when a normatively positive goal is not attained while high effort was present, thus underlining the positive evaluation of the action (investing effort).

Sympathy is connected to a highly specific pattern of ought, goal attainment, and effort: We predominantly feel sympathy when someone tries hard to attain a positive goal and nevertheless fails, representing a positive evaluation of the actor's behavior. As effort and ability are regarded as compensatory, this result also confirms that people are sympathetic toward others who are "unable" and whose plight is "uncontrollable", such as the physically or mentally handicapped (see Weiner, 2006). However, sympathy is also experienced (although to a substantially lower degree) when

effort had not been invested. From an evolutionary point of view, sympathy (or compassion) has evolved as a response to the suffering of others (both kin and non-kin individuals) (Goetz, Keltner, & Simon-Thomas, 2010). Applied to our data, the failing person could be regarded as suffering because of the non-attainment of her/his goal. Consequently, sympathy is elicited when (positive) goals were not attained. However, sympathy is further increased if the person tried hard to attain the goal, which also implies an evolutionary adaptive signal indicating that the person's behavior was good, encouraging the person to continue with this behavior and try again.

Interestingly, moderate degrees of positive moral emotions even occur for non-attained positive goals (given the presence of high effort), and negative moral emotions even occur when positive goals are attained (given the absence of effort). It is in these cases that the evaluative function of moral emotions becomes most obvious: Despite the fact that a person was not successful, the morally positive behavior (investing effort) is appreciated by positive moral emotions.

2) Negative Observer Emotions

Anger, contempt, disgust, and indignation are most strongly experienced vis-à-vis negative goals that are actually attained. Moderate degrees of these emotions are also obtained when a person pursues a negative goal without attaining it (especially for indignation and anger). Finally, a person elicits a certain degree of negative moral emotions if the person did not invest effort to attain a positive goal, communicating that the behavior (not investing effort) was morally negative. Again, these findings underline that "anger is a value judgment following from the belief that one 'could and should have done otherwise'" (B Weiner, 2006). In contrast, *schadenfreude* is most strongly experienced when another person does not attain a negative goal, regardless of whether the actor tried hard or not. In addition, some degree of *schadenfreude* is also experienced when a positive goal is not attained because the actor invested only little effort. Apparently, people do not deserve to attain any negative goal (regardless of how much they tried), and (to a lesser degree) they do not deserve to attain a positive goal when effort is absent (see also Hareli & Weiner, 2002).

3) *Positive Actor Emotions*

Similar to its observer counterpart, pride is most strongly experienced when highly positive goals are attained given high effort, underlining the positive evaluative function of pride. Moderate pride is also experienced for the attainment of positive goals in the absence of effort and for the attainment of negative goals. Tangney (1990) as well as Tracy et al. (2005) distinguish between alpha pride (pride related to one's personal self; (see also Lewis, 2008) and beta pride (being proud of one's own behavior). Whereas beta pride results from attributions to internal, unstable, controllable causes (i.e., effort, according to our analysis), alpha pride results from attributions to internal, stable, uncontrollable causes (e.g., ability, as derived from effortless goal attainment). Almost no pride is experienced for situations characterized by non-attainment of a goal (regardless of ought and effort).

4) *Negative Actor Emotions*

Embarrassment, guilt, regret, and shame are most strongly experienced for the non-attainment of positive goals, when only little effort has been invested⁵. As for negative observer emotions, the negative evaluation of lack of effort becomes obvious. In addition, moderate degrees of these emotions are obtained for negative goals, regardless of goal attainment and effort. In previous research (e.g., Haidt, 2003; Tangney & Dearing, 2002; Tangney et al., 2007; Weiner, 2006), it is agreed upon that shame, guilt, and embarrassment as self-conscious emotions are experienced in social contexts and function as a means of behavioral regulation and to avoid negative sanctions from others. The present data suggest that a great amount of the similarities in these negative moral actor emotions can be traced back to the cognitive antecedents of ought, goal attainment, and effort.

In short, our results can be summarized as follows: Positive moral observer emotions (admiration, pride, respect, sympathy) constitute positive evaluation of other person's actions and predominantly occur for pursuing morally positive goals (ought) as well as for investing effort to attain these goals.

In contrast, negative moral observer emotions (anger, contempt, disgust, indignation, schadenfreude) communicate negative evaluations of other person's actions and are typically elicited by pursuing morally negative goals or not investing effort to attain morally positive goals).

Positive moral actor emotions (pride) function as a positive evaluation of a person's own action and are most likely to occur for the attainment of positive goals, especially in the presence of high effort.

Finally, negative moral actor emotions (shame, guilt, regret, embarrassment) are negative evaluations of a person's own action and are typically caused by morally negative goals or the non-attainment of positive goals, especially when only little effort was invested.

In sum, we suggest that ought, goal attainment, and effort are powerful sufficient conditions determining the emergence of moral emotions. However, this is not to say that these factors are their only determinants. For example, much research has been devoted to the differences between guilt and shame (e.g., Fromson, 2006; H. B. Lewis, 1971; Niedenthal, Tangney, & Gavanski, 1994; Silfver, 2007; Tangney & Dearing, 2002; Tangney & Fischer, 1995; Tangney, Miller, Flicker, & Barlow, 1996; Tangney, 1991) or anger and contempt (e.g., Fischer & Roseman, 2007), offering important additional insights with regard to specific emotions, for example envy and schadenfreude (e.g., Feather & Sherman, 2002; Smith & Kim, 2007), admiration (Algoe & Haidt, 2009) or pride (Tracy & Robins, 2007).

Furthermore, various emotional appraisal theories have analyzed different cognitive appraisals (e.g., pleasantness, fairness, certainty of the outcome, suddenness, personal importance, controllability, effort, modifiability, familiarity etc.) as antecedent conditions for the elicitation of a large variety of different emotions (such as sadness, fear, disappointment, shame, anger, joy, surprise, relief, disgust or hope; (e.g., Ellsworth & Scherer, 2003; Frijda, Kuipers, & ter Schure, 1989; Lazarus & Smith, 1988; I. Roseman & Evdokas, 2004; I. J. Roseman et al., 1994; Scherer, Schorr, & Johnstone, 2001; C. A. Smith & Lazarus, 1993). However, note that within the moral domain, the emergence of emotions strongly depends on appraisals that are referring to volitional control. With regard to the evaluation of goal attainment, only ought (the

⁵ There is only one exception; in Study 2, in case of non-attained positive goals, shame was felt to a fairly similar extent for both conditions (high effort as well as lack of effort).

positive or negative moral standard) and effort (the amount of invested effort to attain the respective goal) are controllable to the person (Heider, 1958; B. Weiner, 1995; B. Weiner, 2006) and thus elicit moral emotions which function as evaluations of our intentions (ought) and actions (effort).

Moreover, an important contribution of the present research is to offer a comprehensive framework that applies to all moral emotions, and on which more specific analyses, including additional determinants of specific emotions, can be based. As a starting point, we suggest that moral emotions constitute positive (positive moral emotions) or negative (negative moral emotions) evaluations of our own (actor emotions) or others (observer emotions) actions in the process of goal attainment. These evaluations of actions are based on universal moral standards (ought), the attainment of a person's goal (goal attainment), and the invested effort to attain the goal (effort).

Future Research

In the present studies, we have analyzed two new concepts in the domain of moral emotions, that is, goal attainment and effort. Previous studies mainly focused (1) on the moral standards underlying the actions under consideration, and (2) the reasoning processes giving rise to moral judgments (see Greene et al., 2001; Kohlberg, 1969). According to our results, moral standards indeed lie at the very heart of moral judgments. However, the one-sided focus on moral standards disregards essential information that is accessible to naïve actors and observers. In light of our findings, it becomes apparent that goal attainment and effort are powerful (additional) predictors of moral emotions as well.

Several research questions arise in this context: First of all, future research should analyze the influence of ought, goal attainment, and effort on moral behavior. It seems plausible to assume that approach and avoidance as well as reward and punishment vary as a function of the moral standard of a goal, goal attainment, and effort. Closely connected to this question, research is needed to elucidate the motivational (i.e., functional) status of moral emotions with respect to moral actions. From an evolutionary point of view, we assume that moral emotions evolved to motivate moral behavior (see Greene, 2003). In line with this view, studies on helping behavior and aggression from an attributional viewpoint revealed that these behavioral reactions are predominantly

mediated by the experience of sympathy and anger (prototypical moral emotions; (see Rudolph et al., 2004). Furthermore, it was found that guilt, shame, regret and schadenfreude also influence helping behavior or similar pro-social actions (Aiqing, Fanglian, & Huashan, 2004; de Hooze, Zeelenberg, & Breugelmans, 2007, 2010; Ketelaar & Tung Au, 2003; Martinez, Zeelenberg, & Rijsman, 2011). Equivalent empirical research on the motivational function of other moral emotions is still missing, however.

Second, it becomes apparent that the Heiderian concepts of ought, goal attainment, and effort divide the landscape of moral emotions into meaningful clusters. Further research is needed to understand the (probably more subtle) differences of those emotions that map into one and the same cluster. For example, we need to fully understand the differences between admiration, respect, and pride, building a joint cluster but presumably differing in some other ways and/or with respect to their behavioral consequences.

Third, it becomes evident that one and the same emotion can be elicited by a variety of different antecedent conditions. For example, anger is elicited vis-à-vis persons pursuing negative goals, but also for non-attainment of a positive goal in the absence of effort. Thus, a promising direction for future research is to analyze prototypical situations eliciting the respective emotion especially clearly. Autobiographical recollections of moral emotions and situations are a promising methodology to answer these questions.

Fourth, the selection of moral emotions discussed in our study was based on a literature search. On the basis of the proposed theoretical framework it is now possible to design studies analyzing the differences between moral and non-moral emotions. For example, it seems reasonable that for the elicitation of non-moral emotions (e.g., joy or sadness) goal attainment should be more important than for the elicitation of moral emotions.

In sum, we believe that the comprehensive theoretical framework presented here provides a useful tool for future research. From this basis, we will be able (1) to better understand the common underlying concepts of moral emotions, and (2) to further explore the idiosyncratic determinants of specific moral emotions beyond their common characteristics outlined in the present research.

ACKNOWLEDGEMENTS

We are extremely grateful to Frank Schössow and Bernard Weiner for their comments and insights related to former versions of the present paper. Moreover, special thanks to Dieter Reichelt for his invaluable help with data collection, and André Körner and Stephanie Laux for editorial assistance.

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